WHAT IS CLAIMED IS:

1. An array of vertical cavity surface emitting lasers (VCSELs) comprising:

a first VCSEL including a first laser aperture at least partially bounded by an oxidized semiconductor material forming a first oxide wall;

a second VCSEL positioned adjacent to the first VCSEL, the second VCSEL including a second laser aperture at least partially– bounded by oxidized semiconductor material forming a second oxide wall; and,

a contact to simultaneously provide current to the first VCSEL and the second VCSEL, the first VCSEL and the second VCSEL closely packed such that when the contact simultaneously provides current to the first VCSEL and the second VCSEL, evanescent waves output by the first VCSEL causes mode coupling between the first VCSEL and the second VCSEL.

2. The structure of claim 1 further comprising:

a high gain coupling region coupling the first laser aperture to the second laser aperture such that the output light modes of the first laser aperture and the second laser aperture are phase coupled.

3. The structure of claim 2 wherein the contact provide current to the high gain coupling region.

4. The structure of claim 2 wherein the gain of the high gain coupling region is higher than the gain of the first laser aperture.

5. The structure of claim 1 wherein the contact is formed from a transparent conductor.

6. The structure of claim 5 wherein light output by the first laser aperture passes through the transparent conductor.

7. The structure of claim 1 wherein the first laser aperture is completely surrounded by oxidized semiconductor material.

8. The structure of claim 1 wherein an unoxidized opening in the first oxide wall bounding the first laser aperture coincides with a corresponding opening in the second oxide wall bounding the second laser aperture such that during operation, electromagnetic radiation from the first laser couples to the second laser inducing mode coupling between the first laser and the second laser.

9. The structure of claim 1 wherein the first oxide wall bounding the first laser aperture includes a plurality of via holes, the first oxide wall formed by lateral oxidation from the plurality of via holes.

10. The structure of claim 1 wherein the first oxide wall and the second oxide wall merge together in a section, the merged together section separating the first laser aperture from the second laser aperture.

11. The structure of claim 1 wherein the first oxide wall bounding the first laser aperture and the second oxide wall bounding the second laser aperture are both formed from a plurality of via holes, the first oxide wall and the second oxide wall formed by lateral oxidation from the plurality of via holes.

12. An array of vertical cavity surface emitting lasers (VCSELs) comprising:

a first VCSEL including a first laser aperture, the first laser partially surrounded by a first oxide wall and at least an opening in the first oxide wall;

a second VCSEL positioned adjacent to the first VCSEL, the second VCSEL including a second laser aperture partially surrounded by a second oxide wall and an opening in the second oxide wall, the opening in the first oxide wall and the opening in the second oxide wall aligned to facilitate evanescent waves from the first VCSEL to interact with an active region of the second VCSEL.

13. The array of claim 12 further comprising:

a high gain coupling region that including a high gain region coupling the at least one opening in the first oxide wall to the corresponding opening in the second oxide wall.

14. The array of claim 13 further comprising:

a contact coupled to the first VCSEL and the second VCSEL, the contact to simultaneously pump current through the first VCSEL and the second VCSEL.

15. The array of claim 14 further comprising:

a high gain coupling region that including a high gain region coupling the at least one opening in the first oxide wall to the corresponding opening in the second oxide wall, the high gain coupling region also coupled to said contact such that said contact provides current to the high gain coupling region thereby facilitating mode coupling between the first VCSEL and the second VCSEL.

16. The array of claim 12 further comprising:

a third VCSEL positioned adjacent to the first VCSEL, the third VCSEL including a third laser aperture partially surrounded by a third oxide wall and

an opening in the third oxide wall, a second opening in the first oxide wall and the opening in the third oxide wall aligned to allow evanescent waves from the first VCSEL to reach an active region of the third VCSEL.

17. The array of claim 16 further comprising:

a plurality of high gain coupling regions including a first high gain region coupling the at least one opening in the first oxide wall to the corresponding opening in the second oxide wall and a second high gain region coupling the second opening in the first oxide wall to the corresponding opening in the third oxide wall.

18. The array of claim 16 further comprising:

a single contact to simultaneously provide power to the first VCSEL, the second VCSEL and the third VCSEL.

19. The array of claim 17 further comprising:

a single contact to simultaneously provide power to the first VCSEL, the second VCSEL, the third VCSEL and the plurality of high gain coupling regions.

20. The array of claim 1 further comprising:

a high gain coupling region formed by heavily doping the substrate in the at least one opening in the first oxide wall and the corresponding opening in the second oxide wall.

21. An array of vertical cavity surface emitting lasers (VCSELs) comprising:

a first plurality of via holes that serves as a lateral oxidation starting point to form a first oxide wall, the first oxide wall at least partially surrounds a laser aperture of a first VCSEL;

a second plurality of via holes that serves as a lateral oxidation starting point to form a second oxide wall, the second oxide wall at least partially surrounds a laser aperture of a second VCSEL; and,

a contact to simultaneously provide current to the first VCSEL and the second VCSEL.

22. A method of forming an array of VCSELs comprising the operations of:

forming a plurality of via holes in a substrate;

laterally oxidizing the substrate to form a first oxide wall partially surrounding a first laser aperture and a second oxide wall partially surrounding a second laser aperture, the first laser aperture positioned such that evanescent waves from the first laser aperture will induce mode locking between the first laser aperture and the second laser aperture.

23. The method of claim 22 wherein lateral oxidation extent is controlled such that lateral oxidation fronts that originate from a first via hole does not contact the lateral oxidation fronts that originate from adjacent via holes.

24. The method of claim 23 wherein the region between adjacent via holes is heavily doped to form a high gain coupling region between the first laser aperture and the second laser aperture.

25. The method of claim 22 further comprising the operation of depositing a single contact above the first laser aperture and the second laser aperture.

26. An array of vertical cavity surface emitting lasers (VCSELs) comprising:

a first VCSEL including a first laser aperture at least partially bounded by an oxidized semiconductor material forming a first oxide wall;

a second VCSEL positioned adjacent to the first VCSEL, the second VCSEL including a second laser aperture at least partially bounded by oxidized semiconductor material forming a second oxide wall; and,

a high gain region positioned between the first VCSEL and the second VCSEL, the high gain region to enhance mode coupling between the first VCSEL and the second VCSEL.

27. The array of claim 26 wherein the high gain is achieved by heavily doping the substrate to reduce the conductivity of the high gain region.

28. The array of claim 26 further comprising:

a reflecting structure over the high gain region, the reflecting structure modified such that the reflectivity of the reflecting structure over the high gain region is reduced to avoid lasing in the high gain region.

29. The array of claim 28 wherein the reflecting structure is a distributed Bragg reflecting mirror, and the mirror over the high gain region is selectively etched to reduce reflectivity.

30. The array of claim 28 wherein a thin layer is added to the reflecting structure to change the phase matching properties to reduce reflectivity of the reflecting structure over the high gain region.

31. The array of claim 26 further comprising:

a high loss region formed over the high gain region to decrease cavity quality factor and increase the threshold for lasing.

32. The array of claim 31 wherein the high loss region is formed by heavy p-type doping in a mirror layer over the high gain region.